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MANGROVE ECOSYSTEMS

A MANUAL FOR THE ASSESSMENT OF BIODIVERSITY

A follow up of the
National Agricultural Technology Project
(NATP.), ICAR.

Mangrove Ecosystem Biodiversity :
Its Influence on the Natural Recruitment of
Selected Commercially Important Finfish and Shellfish
Species in Fisheries

Edited by :
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(Indian Council of Agricultural Research)
P.B. No. 1603, Ernakulam North P.O; Cochin – 682 018, Kerala, India

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Assessment of BiochemicalOxygen Demand (BOD) in Tropical Aquatic Systems (Modified)

G.S.D. Selvaraj

Introduction :

The procedures adopted to determine BOD in tropical coastal water bodies are complicated and time consuming resulting in practical difficulties. The results do not give the realistic picture of the existing environment and also do not meet the immediate need at times of emergency due to the drawbacks such as incubation at 20^0C for five days for tropical water samples. Hence, development of a simplified method to assess BOD is a prerequisite for tropical waters.

Principle:

This simplified method does not require BOD incubator as the BOD values are obtained after 24 hours of incubation at room temperature. This would indicate the extent to which biochemical oxygen demand is there in the aquatic system much closer to reality. Winkler method is followed to fix the 'I' bottle and 'D' bottle samples. The difference in the oxygen values obtained between Initial and Dark bottle samples for 24 hours would give the BOD value (ml O_2/ l) per day.

Reagents:

All the reagents used for estimation of dissolved oxygen by Winkler method.

Procedure:

Collect water samples in 'I' and 'D' labelled BOD glass bottles of 125 or 250 ml capacity in duplicate without entangling air bubbles. Fix the 'I ' labelled bottle samples with Winkler ' A' and 'B 'and keep the 'D' labelled water samples inside the dark bag and place them in a trough of water at room temperature and fix the 'D' labelled samples after 24 hours. Note the initial and final time and estimate the dissolved oxygen values of 'I' and 'D' bottles. Find out the difference between 'I' and 'D' value per 24 hours. Calculate the average BOD value of the duplicate samples in ml O_2 / l/ day or mg O_2 / l /day. To convert oxygen value from ml/l to mg/l, values in ml/l are divided by 0.7

BOD(ml O_2/ l/d) = (I-D) oxygen value per 24 hrs.

Note: (1). This result does not include photosynthetic release of oxygen in water of that day.

(2) Wherever primary productivity experiments (by L & D bottle oxygen technique) are not possible to conduct , this method can be followed to assess BOD in tropical water bodies which gives the result on the next day , much closer to reality.

Suggested References

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